Andrew Burton Moyes

Curriculum Vitae, 12/2013

Postdoctoral Scholar
University of California Merced
amoyes@ucmerced.edu

Earth Sciences Division 84-103E
Lawrence Berkeley National Lab.
abmoyes@lbl.gov
(510) 495-2168

Research Interests

Plant ecophysiology
Impacts of global change to plants, ecosystems, and biogeochemical cycles

Education

Postdoctoral Training, 2010-Present
University of California Merced, Lawrence Berkeley National Laboratory
Funding grant: Subalpine and alpine species range shifts with climate change: temperature and soil moisture manipulations and population responses
Investigators: Lara Kueppers, John Harte, Margaret Torn, Jeffry Mitton, and Matthew Germino

Ph.D., Biology, 2010
University of Utah
Dissertation: The contribution of recently-assimilated carbon to soil respiration
Committee: David Bowling (chair), James Ehleringer, Thure Cerling, Kip Solomon, and John Sperry

M.S., Biology, 2004
California State University Los Angeles
Master's thesis: Prescribed fire and restoration of native plants in a California annual grassland
Committee: John Gamon (chair), Robert Nakamura, and Robert Desharnais

B.S., Biology, 2001
California State University Los Angeles

Positions

2010 – Pres. Postdoctoral Scholar, University of California Merced, PI: Lara Kueppers
2008 – 2010 Research Assistant, University of Utah, Professor JR Ehleringer
2004 – 2007 Teaching Assistant, University of Utah, Biology
2006 – 2007 Research Assistant, University of Utah, Professor DR Bowling

2001 – 2004 Biological Technician, Santa Monica Mountains National Recreation Area
2000 – 2003 Surveyor of protected oak tree species in Los Angeles County

Awards

2006 – 2010 A. Herbert and Marian W. Gold Scholarship for Plant Biology Research
2008 AGU Student Registration Grant, Biosphere-Atmosphere Stable Isotope Network (BASIN)
2008 Travel Grants, University of Utah, Department of Biology and Graduate School
2006 Travel Grants, University of Utah, Department of Biology and Graduate School
2001 – 2004 Graduate Fellowship, Center for Environmental Analysis, Centers for Research Excellence in Science and Technology (CEA-CREST), National Science Foundation
2000 – 2001 Undergraduate Research Assistantship, Collaborative Research at Undergraduate Institutions (CRUI), National Science Foundation

Publications

Moyes, AB, and DR Bowling (2013) Interannual variation in seasonal drivers of soil respiration in a semi-arid Rocky Mountain meadow. *Biogeochemistry* 113: 683-697.

Moyes, AB, C Castanha, MJ Germino, and LM Kueppers (2013) Warming and the dependence of limber pine (*Pinus flexilis*) establishment on summer soil moisture within and above its current elevation range. *Oecologia* 171(1): 271-282.

Gamnitzer, U, AB Moyes, DR Bowling, and H Schnyder (2011) Measuring and modeling the isotopic composition of soil respiration: Insights from a grassland tracer experiment. *Biogeosciences* 8(5): 1333-1350.

Moyes, AB, SJ Gaines, RT Siegwolf, and DR Bowling, (2010) Diffusive fractionation complicates isotopic partitioning of autotrophic and heterotrophic sources of soil respiration. *Plant, Cell and Environment* 11: 1804-1819.

Moyes, AB, AJ Schauer, RT Siegwolf, and DR Bowling (2010) A manual injection method for measuring carbon isotope content of soil carbon dioxide and soil respiration with a tunable diode laser absorption spectrometer. *Rapid Communications in Mass Spectrometry* 24: 894-900.

Moyes, AB, MS Witter, and JA Gamon (2005) Restoration of native perennials in a California annual grassland after prescribed spring burning and solarization. *Restoration Ecology* 13(4): 659-666.

Manuscripts in Preparation:

Moyes, AB, B Lazarus, MJ Germino, and LM Kueppers, Heightened summer drought stress offsets climate warming benefits during alpine treeline advance.

Moyes, AB and DR Bowling, Plant phenology regulates seasonal variation of soil respiration along a Rocky Mountain tree-meadow ecotone.

Presentations:

Invited Oral Presentations:

Transport-associated $\delta^{13}C$ variability of CO_2 in soil pores and surface fluxes: some observations and challenges for modeling. Moyes, AB, Stable Isotopes in Biospheric-Atmospheric Exchange (SIBAE), Nancy, France, 2011

Rhizosphere respiration enriches soil respiration flux in $^{13}CO_2$ under boxelder (*Acer negundo*) trees. Moyes, AB, SJ Gaines, RT Siegwolf, and DR Bowling, American Geophysical Union, San Francisco, California, 2008

Contributed Oral Presentations:

Warming reduces cold stress but increases moisture stress for establishing limber pine within and above alpine treeline. Moyes, AB, B Lazarus, MJ Germino, and LM Kueppers, Ecological Society of America, Minneapolis, Minnesota, 2013

Causes of spatial and temporal variation in soil respiration along a Rocky Mountain riparian-meadow ecotone. Moyes, AB, and DR Bowling, Ecological Society of America, San Jose, California, 2007

Seasonality of temperature, moisture, and substrate controls on soil carbon dioxide in a Rocky Mountain meadow. Moyes, AB, and DR Bowling, American Geophysical Union, San Francisco, California, 2006

Poster Presentations:

Physiological stress of limber pine seedlings at and above treeline immediately following natural and and experimentally advanced snowmelt. Moyes, AB, MJ Germino, and LM Kueppers. Amercian Geophysical Union, San Francisco, California; and Mountain Climate Meeting, Estes Park, Colorado, 2012

Sensitivity of limber pine (*Pinus flexilis*) seedling physiology to elevation, warming, and water availability across a timberline ecotone. Moyes, AB, C Castanha, SM Ferrenberg, MJ Germino, and LM Kueppers, American Geophysical Union, San Francisco, California,

2010

In-situ carbon isotopes of soil CO_2 in a subalpine forest over three summers. Bowling, DR, AB Moyes, SP Burns, and RK Monson, American Geophysical Union, San Francisco, California, 2009

Long-term results from an urban CO_2 monitoring network. Ehleringer, JR, AB Moyes, S Rowley, D Pataki, CT Lai, and AJ Schauer, American Geophysical Union, San Francisco, California, 2009

Carbon isotope ratios of soil respiration from soil CO_2 profiles and surface chamber measurements using a tunable diode laser. Moyes, AB, SM Schaeffer, AJ Schauer, RT Siegwolf, and DR Bowling, AGU, San Francisco, California, 2007

Carbon dioxide, temperature, and moisture under a Rocky Mountain meadow. Moyes, AB, and DR Bowling, Ameriflux, Boulder, Colorado, 2006

Effects of genotype and light environment on xanthophyll cycle activity as detected by spectral reflectance. Moyes, AB, A Ustarez, R Nakamura, and JA Gamon, Western Photosynthesis Conference, Asilomar, California, 2004

Relating NDVI and WBI to carbon flux and biomass in a grassland ecosystem. Brunelle, SM, AB Moyes, SA Houston, and JA Gamon, American Geophysical Union, San Francisco, California, 2003

Prescribed fire effects in a California annual grassland. Moyes, AB, and JA Gamon, 2003, Ecological Society of America, Savanna, Georgia, 2003

Ecosystem carbon flux in a disturbed, fragmented Southern California landscape. Gamon, JA, D Fuentes, D Sims, SA Houston, AB Moyes, HL Qiu, and W Oechel, Jet Propulsion Laboratory, Pasadena, California, 2002

Teaching Experience

Guest Course Lecture:
Ecosystem Ecology, Professor LM Kueppers, UC Merced, 2011

Teaching Assistantships:
Biophysical Ecology, Professor DR Bowling
Principles of Biology, Professor R Dawson
Plant Ecology, Professor JR Ehleringer
Ecology and Evolution, Professors J Seger and F Adler
Ecosystem Ecology, Professor DR Bowling

Interaction with Media

UC Merced Communications feature, 2013
BBC “Science in Action” radio appearance, 2011
Salt Lake Tribune newspaper cover story, 2006

Professional Society Memberships

American Geophysical Union
Ecological Society of America

Manuscript Reviews

Agricultural and Forest Meteorology; Annals of Forest Science; Ecosystems; Arctic, Antarctic, and Alpine Research; Ecosystems; EGU Biogeosciences; Functional Plant Biology; JGR Biogeosciences; Journal of Environmental Management; Plant, Cell and Environment; Plant and Soil; PLOS One; Rapid Communications in Mass Spectrometry; Soil Biology and Biochemistry